

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

173
P6981r

LIBRARY
RECEIVED
★ SEP 14 1931 ★
U. S. Department of Agriculture

BLISTER RUST AND WHITE PINE

DEMONSTRATION AREAS

VERMONT

BLISTER RUST AND WHITE PINE
DEMONSTRATIONS AREAS

<u>Contents</u>	<u>Page</u>
1. Effect of Blister Rust on White Pine	2-3
2. Areas Demonstrating Special Facts Regarding Blister Rust	4
3. Effectiveness of Eradication of Ribes in Controlling Blister Rust.	4
4. Efficiency in Ribes Eradication	5
5. Effect of Different Species of Infected Ribes on White Pine	5
6. Effect of Blister Rust on White Pine Plantations	6
7. Effect of Blister Rust on Ornamental Pine	6
8. Location of Wild Ribes Species	7
9. White Pine as a Crop	7
10. Old Growth White Pine	8
11. White Pine Plantations of Different Ages and Special Significance as Regards Site, Growth, Etc.....	8
12. White Pine Management.....	9
13. Utilization of White Pine	9
14. Special Enemies of White Pine.....	10
15. Diseases on Conifers Other Than White Pine	10
*16. Special Forestry Features	10

* Areas to be added later as located.

BLISTER RUST AND WHITE PINE
DEMONSTRATION AREAS
(Data as of January, 1928)

VERMONT

1. Effect of Blister Rust on White Pine.

Caledonia County

John Roy lot, East Barnet, heavy infection over large area, eradication work done in 1923. Ribes cynosbati and glandulosum numerous.

Chittenden County

Pine of all ages

Brownelt area - Williston

See Extension Forester,
Burlington, Vt.

Orange County

(b) Medium aged pine: Reed lot, Chelsea, 25 acres, heavy infection, Ribes cynosbati and hirtellum.

Data by F.H. Rose, White River Junction.

Rutland County

(a) Reproduction. Lobdell lot at Wells, 20 acres, seeded into old pine cutting, Ribes cynosbati, large bushes in open. Many stem cankers. Pine of exceptionally rapid growth. Eradication signed up spring 1928. Sheldon lot Fair Haven, 40 acres, reproduction in mixture with older trees. Ribes cynosbati were especially large and abundant. Eradication work done in 1927.

(b) Medium aged pine: Hamilton lot in Fair Haven, 40 acres pine, quite heavy infection, prevailing species Ribes cynosbati. Eradication worked 1927.

Windham County

(a) Reproduction: H.O. Gale lot, Townshend

(b) Medium aged pine: Charles Willand lot, Townshend.

Windsor County

(a) Reproduction: Alexander lot at Royalton. Ten acres seeded into old pine cutting, age of pine 6-10 years old, Ribes cynosbati, many trees with trunk cankers, eradicated in 1925. Powers lot, Hartland, Fifty acres pine planted with German stock, Ribes cynosbati many trunk infections, eradicated in 1923. Age about 18 years, good growth.

1. Effect of Blister Rust on White Pine

Calcedonia County

Waterford area. This area presents a most striking example of blister rust damage to scattered pines in a pasture type and to merchantable sized trees in a well stocked mixed stand. Infection studies have been in progress in this tract since 1924. Apparently, most of the infection was caused by cultivated black currants. These bushes were planted about 1909 at the upper Lee Farm about 1700 feet northwest of the merchantable stand. The patch was increased by cuttings and numbered about eighty large bushes when destroyed in 1917. Scattered throughout the pasture, especially in the moist sites were Ribes hirtellum and glandulosum. At the time of their eradication in 1925, these wild Ribes averaged per acre 10 bushes and 195 feet of live stem. The skunk currants were restricted to six patches, but contained 55 percent of the total amount of live stem. No wild Ribes were found in the merchantable stand, but scattered bushes occurred nearby, particularly in the adjacent pasture.

In the pasture type, a study of pine infection was made during 1924 in 21.5 acres. At that time, 38 percent of the 2,178 pines in this type were infected and over 26 percent of the trees had stem cankers. The oldest canker occurred on wood of 1908 origin. However, it probably originated in 1909 on two year old needles.

A study of blister rust damage was begun during 1925 in a three acre unit of the merchantable stand. This plot contains a mixed growth of pine and spruce about sixty years old. Over three-fourths of the pines range from 50 to 80 feet in height. At the time of the original examination in 1925, 78 percent of the 368 pines were infected, 60 percent had stem cankers and 9 percent had been killed by the rust. A reexamination of these trees in 1930, showed that 66 percent of the pines had stem cankers and 25 percent had died from the disease. Considering only the 284 infected pines, 85 percent had stem cankers in 1930 and 52 percent were dead. Pines of all size classes have been fatally attacked, especially the larger trees; however the smaller infected pines die more quickly. The status of infection on each pine in this plot has been indicated by marking the tree with white paint.

Cross = branch canker only

Single band = infected with stem canker (tree alive)

Double band = pine killed by blister rust since 1925

Triple band = pine dead from blister rust in 1925

In order to determine the effectiveness of the 1925 control work, a pine infection study was made during 1930 in a half-acre plot (marked by white string) in the pasture type. The unit was laid out in a site between two swamps when Ribes were present in 1925. The plot contains 205 pines, all but 11 of them being under 16 ft. in height. In fact, 110 of the trees are 3 ft. or less in height and 71 of these were grouped in the one-foot class. Forty-two of the 205 pines in the plot became infected with 109 cankers prior to the control work. After 1925, only six

other trees or 2.9 percent of the total number became diseased. Also, only three pines which were diseased prior to 1925 became reinfected at a later date. This small amount of new infection totaling only 11 cankers on nine trees shows that the application of control measures in 1925 has effectively checked the spread of the disease in a situation where Ribes were difficult to eradicate.

2. Areas Demonstrating Special Facts Regarding Blister Rust

Caledonia County

George Richardson lot, East Barnet, Damage study - thick growth of white pine twenty years on old pasture land, quarter-acre plot laid out, Ribes all hirtellum. All trees examined, and records made of infections. Study made October 30, 1923. Ribes examined, age, L.B.S. recorded. Over 80% infection of pine, spring brook close to sample plot.

Orange County

Belnap lot, Tunbridge - Damage study - 1/4 acre of pine aged 30 years, Ribes cynosbati. Trees all examined and data recorded. This infection took place in seven years. Pine infection 96%.

F.H. Rose, White River Jct., Vt.

Windham County

Damage study, H.O. Gale lot, Townshend.

3. Effectiveness of Eradication of Ribes in Controlling Blister Rust

Bennington County

Fisher lot at Arlington. Eradication in 1920 and 1924, plantation, Ribes very numerous originally, few new infections present.

Chittenden County

Dr. S. Webb, Shelburne

Franklin County

The only thing of interest is the plantation of 288,000 trees, mainly all white pine at Dr. Stevens Estate, East Enosburg.

See Extension Forester, Burlington.

Windham County

M.F. Dutton Area, Dummerston.

Bugbee & Aplin area, Newfane,

Geo. Williams area, Williamsville.

Windsor County

Evarts lot at Windsor. Two hundred acres uneven aged stand, eradicated in 1921, few new infections if any.

F.H. Rose, White River Jct., Vermont.

4. Efficiency in Ribes Eradication

Chittenden County

W.V.M. Burlington.

See Extension Forester, Burlington.

Rutland County

Pittsford Sanatorium lot at Pittsford, Ribes eradicated 1926. 80 acres old growth-reproduction and plantation, Ribes cynosbati and glandulosum several recheckings found no Ribes.

Windham County

George Clapp area Dummerston.

Windsor County

F.A. Kennedy Estate, Windsor. 200 acres of old growth reproduction Ribes cynosbati, & glandulosum checking shows very few Ribes. Skunk currant beds fail to show any Ribes, eradicated in 1922.

See F.H. Rose, White River Jct., Vt.

5. Effect of Different Species of Infected Ribes on White Pine

Chittenden County

Cynosbati. Brownell property, Williston.

See Extension Forester, Burlington.

Orange County

Cynosbati. F.W. Hard lot, Fairlee. Heavy infection on reproduction and second growth.

See F.H. Rose, White River Junction,

Rutland County

Cynosbati. Sheldon lot, Fair Haven. Practically only species present, Heavy infection of reproduction.

Glandulosum. Rutland City Forest lot, Mendon. Ribes in moist pockets adjoining plantation, very numerous, infection of white pine quite scarce and scattered, few of other species of Ribes. Ribes eradicated in 1926. A good example of persistence (in sprouting from roots) of glandulosum.

Windham County

Cynosbati. Franklin lot Townshend,

Fred March area, Brattleboro.

Windsor County

Glandulosum. Mary Fletcher, Cavendish, Ribes located on lodges and in moist places, very little infection on pine.

See F.H. Rose, White River Junction, Vt.

Caledonia County

R. nigrum. (See under 1) Waterford Area.

6. Effect of Blister Rust on White Pine Plantations

Franklin County

The only thing of interest is the plantation of 288,000 trees, mainly all white Pine at Dr. Stevens Estates, East Enosburg.

Rutland County

Plantations - Vermont Hydro-elec. lot plantation at Chittenden. Area eradicated 1926. Ribes cynosbati and glandulosum quite numerous. Unusually heavy infection of pine. Several features of this lot hard to account for. Trees were raised by Hydro Company in own nursery from seedling stock. Suspect infected in nursery. No native growth pines within several miles. Infection probably highest percentage in this section of district.

Windham County

Harris Plantation, Brattleboro- F.D.Z. Stowe Plantation, Marlboro.

Windsor County.

Johnson Plantation, Pomfret. Heavily infected in 1922.
F.H. Rose, White River Junction, Vt.

- - - - -

7. Effect of Blister Rust on Ornamental Pine

Orange County

None worth mentioning. A few infected trees have been planted on lawns in the towns of Thetford and Fairlee.

F.H. Rose, White River Junction, Vt.

Rutland County

Rogers Estate, Chittenden. Blister rust has destroyed most of white pines on property. Trees scattered in open, trunk cankers. No cutting out of infections to date.

8. Location of Wild Ribes Species

Chittenden County

Cynosbati at Bishop Hopkins Hill, Burlington.
See Extension Forester, Burlington.

Rutland County

Americanum. Hyde lot at Huff Pond, Sudbury, Especially large and numerous.

Cynosbati. Levack lot, North Rutland. Exceptionally large and numerous. Many bushes taller than man. Pine on this lot scattered and scrubby. Infection quite plentiful.

Glandulosum. Many locations in mountain towns east of Rutland. This species practically forms entire groundcover under hardwoods and spruce. Several large plantations in these towns. Does not seem to cause heavy infection.

Windham County

May be found generally all through Windham County.

Windsor County

Cynosbati. A.E. Weston lot, Hartford. This area contained a large number of bushes from six to eight feet, 10 acres of pine about 30 years. Infection not as heavy as might be expected. Eradicated 1927.

Glandulosum. Numerous in the southern part of district in the towns of Reading and Cavendish.

F.H. Rose, White River, Junction, Vt.

- - - - -

9. White Pine as a Crop.

Chittenden County

Dr. S. Webb Estate, Shelburne.
See Extension Forester, Burlington.

Rutland County

The Candon lot in Pittsford. Selective cuttings and improvement thinnings practiced here.

The Carroll lot, Sudbury. Very fine and heavy reproduction, rapid growth.

Buxton lot at Middletown. Fine stands on various types, sites, and soils. Various aged stands seeding into old pastures and meadows.

Windham County

M. F. Dutton, Dummerston.

Windsor County

Evarts Estate, Windsor. Selective cuttings and improvement.

Mary E. Evarts, Windsor. Selective cuttings, fine reproduction.

D. Webster lot, Hartland. Fine stand of pine 50-70 years old.

10. Old Growth White Pine

Chittenden County

Clark Estate, Burlington.

See Extension Forester, Burlington.

Rutland County

Erwing lot in Wells. Ten acres heavy stand, 80 to 100 years old.

Leamy lot in West Haven, West Haven, on clay soil, over 100 years old, trees up to 3 ft. in diameter and 120 ft. tall.

Windham County

Warner Thomas lot, Brattleboro.

Windsor County

D. Webster lot, Hartland. 20 acres of old trees. Newton lot, Norwich. A number of fine first growth pines.

F.H. Rose, White River Junction, Vermont.

11. White Pine Plantations of Different Ages and Special Significance
as Regards Site, Growth, Etc.

Bernington County

The Dorothea Canfield Fisher planting of white pine at Arlington.

See Extension Forester, Burlington, Vt.

Franklin County

The only thing of interest is the plantation of 288,000 trees, mainly all white pine at Dr. Stevens Estate, East Enosburg.

See Extension Forester, Burlington

Rutland County

Vermont Sanatorium at Pittsford. 12 year old plantation on sandy soil.

Rutland City Forest at Mendon. Mountain land, no native pine, 15 year old plantation, on old field and pastures, about 1500 ft. elevation. Croft lot in Clarendon. Plantation on rich loamy valley land. Fine growth.

Windham County

Eldy planting, Stratton, Scott Farm, Cummerston.

Windsor County

George Waite, West Windsor. 10 acres of pine on rich soil, good growth, 15 years old.

Bishop Lot, Springfield. 40 acres, 18 years old, 90% weeviled, sandy soil.

F.H. Rose, White River Junction, Vt.

12. White Pine Management

Bennington County

(c) Release cuttings - Fisher lot Arlington. 15 acres old growth pine has been cut and land reforested with white pine. Part of property burned over and replanted. Hardwood brush competing with pine. has been cut twice to liberate pine.

Caledonia County

(d) Pine in mixture - Gilman Lot at St. Johnsbury. Land planted to pine, suppressed by hardwood and sold cheap because of apparent loss of pine. Pine finally came through and is now beating hardwood and making splendid growth.

Chittenden County

Ask Extension Forester at Burlington about Boys Club Work.

Essex County

(b) Pruning - Newman lot in Lunenburg.

Rutland County

(c) Release cuttings - Sheldon lot, Fair Haven. Pine seedlings suppressed under gray birch. Liberation cutting planned for 1928.

(b) Pruning - Roger's lot in Timmouth.

" Smith lot in Benson

" Croft lot in Clarendon.

Windham County

Awedon area, Guilford.

Dunklee area, Vernon

M.F. Dutton area, Dummerston.

S.V. Holden, Brattleboro, Vermont.

13. Utilization of White Pine

Bennington County

Abandoned foundry at North Dorset. Old patterns exposed to elements for years still true to form.

At West Haven, Vt. large dimension stock of old growth white pine in demand for boat sidings. Rutland Sash & Door Company. Castleton Box Company.

Rutland County

Howe Scale Works, Rutland. Used for pattern stock. Use of Grade A pine for this purpose proving it does not shrink, warp, or check.

Newton Thompson Company, Forest Dale. Pine used for toys, novelties, etc. showing adaptibility of white pine for this type of work. Unusually close utilization. Example of waste prevention.

Windham County

Plumpton & Son, Wardsboro. Holden & Martin Tea Co., Brattleboro.

14. Special Enemies of White Pine

Rutland County

(a) Needle blight. Many light periodic blightings lasting for one or two seasons. Not permanent, not killing trees.

(b) White pine weevil. Willis Lot, Pittsford. Extreme case of spoiling of crop by weeviling. Reed lot at Pittsford. Retarding of growth by repeated weeviling.

Windham County

White pine weevil, Bellows Falls. Watershed planting.

Windsor County

White pine weevil, Bishop Lot, Springfield. 40 acre plantation 19 years old, about 90% weeviled.

15. Diseases on Conifers Other Than White Pine

Rutland County

(a) Cronartium comptoniae - Marshall lot at Mendon on five year old planted Scotch pine.

Windham County

(a) Cronartium comptoniae - Blodgett lot, Grafton. On Scotch pine plantation.

F.H. Rose, White River Junction, Vt.

Dustain Bros., Bellows Falls. Cronartium on Scotch Pine.

Bailey plantation, Jamaica. Cronartium on Scotch pine. A.M. Mansfield plantation, Williamsville. Cronartium on Scotch pine.

16. Special Forestry Features.

FOR ADDITIONAL DATA

FOR ADDITIONAL DATA